

# DE-DEVELOPMENT IN EASTERN KYRGYZSTAN AND PERSISTENCE OF SEMI-NOMADIC LIVESTOCK HERDING

*John D. Farrington*

## Abstract

This article discusses postcollective herding practices of Kyrgyzstan's seminomadic pastoralists illustrated by case studies of herders in the highland areas of eastern Kyrgyzstan in 2004. After independence in 1991, the privatisation of all livestock meant the burden of risk devolved onto individuals rather than networks, such as collectives or clan units, for the first time in the history of these pastoralists. The ongoing process of social reorganisation which followed livestock privatisation has resulted in a wide variety of coping strategies being employed by herders, including both short- and long-distance migration as partnerships, individual families, extended families or reorganised herding cooperatives. At the same time, reduced livestock numbers since independence have left vast areas of grazing lands vacant. In spite of the many dramatic changes of the last 150 years, migration patterns and cultural identity among Kyrgyz herders have persisted.

**Keywords:** cultural identity, herding practices, Kyrgyzstan, migration, pastoralists, privatisation, risk

## Introduction

Kyrgyzstan is 94 per cent mountainous with elevations ranging from 840 m in the capital Bishkek to over 7,000 m in both the Tian Shan and Pamir-Alai ranges, a geography that has greatly influenced the Kyrgyz system of seminomadic pastoralism (Schmidt 2001). A nation of horsemen, three events of the modern era were to dramatically affect the Kyrgyz people and eventually change their seminomadic, pastoral way of life forever. The first was the arrival of the Russian army in present day Bishkek, in 1860, soon to be followed by thousands of Russian and Ukrainian settlers. These European colonists appropriated large tracts of the most fertile lowland pastures, converting them to plough land, greatly reducing the amount of winter pasture available to the Kyrgyz while also disrupting their seasonal migration patterns and water access for their livestock (Popova 1994, Schillhorn van Veen 1995, Wilson 1997). This event forced some small-herd owners to begin leading settled lives and by 1914 up to 22 per cent of the Kyrgyz population had settled (Popova 1994).

The next major event to affect the indigenous system of nomadic pastoralism was the forced collectivisation under Stalin of all Kyrgyz pastoralists between

about 1928 and 1932, after which time permanent settlements began to be built throughout the whole of Kyrgyzstan. Use of the yurt (Kyrgyz: *boz ui*), which was now seen as being backward, was greatly reduced, while mechanisation was introduced for production and transportation, greatly reducing the need for horses and camels for transport and haulage. The third event to dramatically affect Kyrgyzstan's seminomadic herders (Kyrgyz: *chaban*) was the collapse of the Soviet Union in 1991 and the resulting disbandment of the collectives. The subsequent economic crisis and ongoing process of 'de-development' have left large numbers of seminomadic herders operating as individual family units, rather than as part of a larger collective or clan unit, for the first time in their history.

This article starts with an overview of precollective and collective-era herding practices of Kyrgyzstan's seminomadic pastoralists. This is followed by a discussion of the postcollective situation illustrated from field visits to herders in the highland areas of Kyrgyzstan's eastern Naryn and southern Issyk-Kul Provinces conducted in 2004. In the organisational vacuum left in the wake of independence, most former herding-collective members became individual livestock owners, although a small number of herding collectives were simply reorganised as independent, member-owned cooperatives. Both individual herders and cooperatives were found to be using widely varying operational strategies to cope with the new economic order. These included formation of herding or mixed herding and farming cooperatives; both short and long migration as individual family units, extended family units or partnerships; and management of family-owned herds or mixed herds of both family-owned livestock and the small livestock holdings of sedentary Kyrgyz. While many former herders now have so few animals as to make migration to seasonal pastures uneconomical, seminomadic livestock herding remains the cultural foundation of the Kyrgyz identity and many of the herders visited persisted in seasonal migration patterns that have changed little since the coming of the Russians in the nineteenth century.

## **Pre-collective Era**

Material on the traditional organisation of Kyrgyz nomadic pastoralists is summarised here from Emeljanenko (1994) and Tynaliyev (1994). In the late nineteenth century, Kyrgyz herders followed a three-pasture annual nomadic cycle that was largely vertical in nature due to the mountainous terrain of the Kyrgyz homeland. Horses were the primary animal of nomadic Kyrgyz because of their ability to dig through deep snow to get at grass and their importance for migration, meat, milk and defence. Cows and sheep were of lesser importance.

Winter camps (Kyrgyz: *kyshtoo*) were established at lower elevations, in the mouths of ravines and canyons sheltered from the wind. While horses could be kept in snow-covered pastures, sheep and cows were kept in snow-free areas, such as on steep, south-facing slopes. In summer the Kyrgyz drove their herds to high

summer pastures (Kyrgyz: *jailoo*) in the mountains for several months. Spring and autumn pastures were located at points intermediate between winter and summer pastures and were often the same.

Pasture rights and migration routes were passed down within a clan and migration distances varied from 20 km to 200 km. Families of a clan moved together for protection and in the early 1800s groupings of up to one hundred families were observed (Emeljanenko 1994).

## Collective Era

Collectivisation of Kyrgyz and Kazakh herders began in the late 1920s, as seminomadic pastoralists were forced to reside in permanent settlements and hand over their livestock to local authorities for redistribution. Many herders responded by slaughtering their animals and more animals died when, to meet Soviet wool production goals, sheep were sheared in winter and succumbed to the severe cold. Famine in Soviet Central Asia followed and at least one million people died while thousands fled to other countries (Popova 1994, Soucek 2000).

Nevertheless, Kyrgyz herders were eventually settled in permanent villages and mechanisation was introduced for transportation, farming and processing of livestock products. Soviet planners placed a high priority on wool production in Kyrgyzstan, leading to the creation of a breeding programme in which non-native fine-wool sheep were crossbred with indigenous breeds of fat-tail sheep (Fitzherbert 2000, C. Kerven 2005 pers. comm.). Although the quality of wool from the introduced crossbreeds of sheep was higher, they were not as well suited to the harsh continental climate and, unlike the hardy, indigenous, fat-tail sheep, were less able to search for grass under snow. Thus the new fine-wool crossbreeds required supplemental feed during the long winter months from sown fodder crops or hay, as well as winter sheds for warmth (Fitzherbert 2000). The introduced breeds also did not take to long annual migrations and were eventually transported to summer pastures, primarily by truck (Schillhorn van Veen 1995, Wilson 1997).

Permanent collective villages were built on the traditional sites of winter camps and a collective was made up of anywhere from one to three neighbouring villages, usually composed of related family groups which retained their clan structures (Tynaliev 1994, Van Leeuwen 1994). Herding collectives were subject to government production targets and marketed their produce through state channels, while grazing lands were allocated by local soviets (Tynaliev 1994). Winter sheds were built in villages, and neighbouring pastures were converted for the production of sown fodder crops. These permanent settlements began to be occupied for six to nine months a year. However, each summer livestock continued to be driven into high mountain pastures, now using mechanised transport, where yurt camps were established. In an effort to increase wool production, flock sizes were expanded rapidly after the Second World War and led to the construction of

**Table 1: Kyrgyzstan Livestock Populations (Thousands)**

Year	Cattle	Sheep and Goats	Horses	Total	Sheep Equivalents
1916	519.0	2,544.0	708.0	3,771.0	8,679.0
1941	554.9	2,529.1	407.7	3,491.7	7,342.1
1968	912.0	9,467.0	259.7	10,638.7	15,325.5
1986	1,100.0	10,200.0	275.0	11,575.0	17,075.0
1987	1,150.0	10,100.0	290.0	11,540.0	17,300.0
1988	1,180.0	10,200.0	295.0	11,675.0	17,575.0
1989	1,190.0	10,313.0	300.0	11,803.0	17,763.0
1990	1,214.0	10,060.0	305.0	11,579.0	17,655.0
1991	1,205.5	9,968.1	312.7	11,486.3	17,559.1
1992	1,122.4	8,741.5	313.0	10,176.9	15,918.5
1993	1,062.3	7,322.3	322.0	8,706.6	14,243.8
1994	920.1	5,076.4	299.0	6,295.5	11,171.9
1995	869.0	4,274.8	308.1	5,451.9	10,160.3
1996	847.6	3,716.1	314.1	4,877.8	9,524.6
1997	884.8	3,804.9	325.4	5,015.1	9,855.9
1998	910.6	3,810.6	335.2	5,056.4	10,039.6
1999	932.3	3,806.5	349.8	5,088.6	10,217.0

Sources: Tynaliyev 1994, Spoor 1995, Wilson 1997, Tabyshalieva 2001.

numerous, isolated, permanent houses with winter sheds in both the vicinity of villages and in distant mountain valleys (Table 1). Herders living year-round at these distant 'satellite camps', some more than 200 km from home collectives, were supported by monthly truck deliveries and also regional 'cultcenters', essentially government-sponsored villages providing medical clinics, shops, schools with dormitories, libraries and community centres for rural dwellers.

Soviet planners continued to increase livestock numbers on Kyrgyzstan's mountain pastures throughout the collective period and total livestock numbers finally peaked in 1989 at 17.8 million sheep equivalents (1 horse, cow or yak = 5 sheep), while sheep numbers alone reached 10.8 million head (see Table 1). Each herding collective typically managed about 22,000 sheep, 1,800 head of cattle, 500 horses and 3,000 ha of arable land (Tynaliyev 1994, Wilson 1997). Each herder in the collectives, with the help of his family, was responsible for overseeing about 500 sheep, or 50 to 70 cows or yaks (Tynaliyev 1994).

By 1989 animal population levels were considered to be two to three times the stocking capacity of winter and spring/autumn pastures, which led to severe pasture degradation including proliferation of invasive woody plant species, erosion, slope failure and, in general, reduced overall productivity of pasture lands (Tynaliyev 1994, Fitzherbert 2000). At this time more pastures were lost by being converted to plough lands used to sow additional fodder crops to feed swollen herds, as herd

sizes were now limited by fodder production rather than by availability of winter pasturage as in the precollective period (Tynaliev 1994, Wilson 1997).

## **Postcollective Period**

Kyrgyzstan reluctantly declared independence in 1991. The second poorest of the former Soviet republics after Tajikistan, independent Kyrgyzstan was left without state subsidies, industry, fossil fuel supplies or markets for its goods (Duncan 1994, World Bank 2005). The new nation was suddenly isolated as a landlocked country with poor transport infrastructure and both long distances and multiple international borders separating it from potential new markets in South Asia, East Asia and the Middle East.

Privatisation of Kyrgyzstan's agricultural sector began in 1991 and one by one the republic's herding collectives were disbanded. Animals, equipment, machinery, buildings and other collective assets were distributed among collective members, who unexpectedly found themselves to be individual livestock owners with no experience of herding without state support. To make matters worse, state institutions, such as livestock breeding, veterinary and medical services were quickly terminated, while remaining machinery and infrastructure rapidly deteriorated without maintenance subsidies. Self-sufficiency had now become imperative for survival in Kyrgyzstan.

Economic crisis immediately ensued, resulting in devastating economic hardship for the population, with, by one count, the percentage of Kyrgyz citizens living in poverty soaring from 12 per cent in 1988 to 88 per cent by 1995 (Babu 2000). Widespread malnutrition resulted, especially among children, and many families were forced to sell off their limited assets in order to survive, including livestock, agricultural machinery and even household items (Howell 1996, Babu 2000).

The new free market economy had an immediate effect on livestock numbers. Sheep numbers plummeted from 10.3 million in 1989 to just 3.7 million in 1996, as the now privately owned animals were slaughtered for meat or bartered away, while the number of cattle dipped by about 30 per cent between 1990 and 1996 (see Table 1). Significantly, however, between 1989 and 1999, horse numbers in Kyrgyzstan grew from 300,000 to 350,000, as herders became increasingly reliant on horses after vehicles and machinery quickly fell into disrepair in the absence of a supply of subsidised spare parts (see Table 1; Tabyshalieva 2001).

The rapid decline in livestock numbers was accompanied by two other significant trends with respect to livestock production. The first was a decline in the number of fields sown with fodder crops due to reduced demand as livestock numbers fell. Fields were given over to wheat production as the demand for domestic wheat simultaneously increased. Self-sufficiency in grain became a national priority as old Soviet-era inter-republic trade relations faltered and wheat production in Kyrgyzstan doubled in a short period from 634,400 tons produced in

1992 to 1,273,700 tons in 1997 ( Spoor 1995, GTZ 1999, Babu 2000, Suleimenov 2000, Tabyshalieva 200).

Accompanying the decrease in fodder production was a simultaneous shift in type of sheep raised from the introduced fine-wool crossbreeds back to the indigenous fat-tail sheep, which are favoured by Kyrgyz for their meat (GTZ 1999, Schmidt 2001). There are two primary reasons for this shift. First, in the early 1990s demand for wool on the international market fell sharply, depressing prices. Secondly, with the 64 per cent decrease in sheep numbers between 1989 and 1996, the price of mutton, a staple of the Kyrgyz diet, rose to above international market rate (see Table 1; Schmidt 2001). Less dependent on fodder crops, winter sheds and truck transport for migration and with a higher market value, local fat-tail sheep quickly became a better economic option for independent herders in Kyrgyzstan. Consequently, as a result of these economic developments, wool production in Kyrgyzstan fell by 66 per cent from 33,700 tons in 1992 to 11,400 tons in 1997 (UNS 2003). However, with the international rise in wool prices that began in 2000, this trend has begun to reverse and large-scale sheep herders are now returning to raising fine-wool sheep as the demand for wool increases (FAO 2005, FAOSTAT 2005, C. Kerven 2005 pers. comm.).

Another major change directly affecting herders in post-Soviet Kyrgyzstan is that of land distribution. Whereas in the Soviet era all land was the property of the state and pastures were allocated by local soviets, it is now possible to purchase limited amounts of arable farmland and residential land in Kyrgyzstan. Ownership of Kyrgyzstan's vast pasturelands, however, has been retained by the state. Rights to use pastures are presently available to both individual herders and other economic entities in the form of five- to ten-year pasture leases granted by national, provincial and district governments, depending on the type and location of pastures leased. However, these leases are not issued on the basis of historical use of lands, rather through competitive bids that evaluate not only the price bid per hectare but also a business plan submitted by the bidder (Chemonics 2003).

## **Study Area and Survey Methodology**

A series of field visits were made to pastoralists living in Issyk-Kul and Naryn Provinces (Russian: *oblast*) of eastern Kyrgyzstan throughout a ten-month period in 2004. Naryn Province and the high mountain valleys of southern Issyk-Kul Province were chosen as study sites because most observers consider these regions to exhibit Kyrgyz herding culture in its 'purest form'. These areas are dominated by mountainous pasturelands where livestock herding is the primary economic activity. Although ethnic Kyrgyz only comprised 65 per cent of the total population of Kyrgyzstan in 1999, the population of the study area was almost exclusively Kyrgyz (Rowland 2002).

Grazing lands in the study area can be divided into three broad categories with transitional zones between each type:

- Forested valleys – typically spanning an elevation range of 2,000–3,000 m with abundant, well-watered meadows along valley bottoms. Forested valleys were relatively limited in distribution and primarily located on slopes of the Terskey and Kungoy ranges in the Lake Issyk-Kul basin.
- Mid to high-altitude grasslands – typically spanning an elevation range of 1,500–3,000 m, which included both well-watered valley-bottom meadows as well as sparser, more arid, upland meadows.
- *Syrt* lands – ‘*Syrt*’ is the local term for the high, treeless, plateau valleys of the inner Tian Shan mountains, located between the Terskey and Kakshaal ranges, typically with elevations greater than 2,800 m. Grazing lands in the *syrt* areas are dominated by permafrost-controlled ecosystems such as high-mountain sedge meadows, tundra-type meadows and cushion-plant communities (Zlotin 1997).

Survey methodology consisted of informal interviews, conversations and field trips with various herders and managers at each site visited and was by no means



**Map 1: Location of Case Study Sites in Eastern Kyrgyzstan**

*Note:* Dotted line indicates the approximate boundary of grazing lands in the study area that have been largely de-populated since collapse of the collective system in the early 1990s.

a definitive scientific survey. Nevertheless good geographic coverage of the eastern Kyrgyzstan highlands was achieved and various distinct patterns of present-day transhumant practices emerged, as detailed below.

## **Emerging Patterns of Post-Soviet Livestock Management**

Transhumance continues to be practised by a large segment of the population in the study region. However, in the thirteen years since the advent of private ownership of livestock, an ongoing process of social reorganisation amongst seminomadic herders has occurred. Herders, in response to the end of generous state support for seminomadic herding, have adopted a wide variety of coping strategies, including:

- Remaining in large herding collectives practising transhumance, which have been reorganised as independent cooperatives;
- Both short- (< 20 km) and long-distance (> 20 km) migration as an extended family unit;
- Both short- and long-distance migration as a single family unit;
- Both short- and long-distance migration in partnership with friends, neighbours and others outside the immediate family;
- Both short- and long-distance migration while herding a mixture of personal livestock and that of paying 'clients';
- Diversifying income-generating activities to include not only herding, but also activities like planting of staple food crops such as potatoes and wheat, catering to tourists, or having a family member take a job in the home community; and
- Ending all nomadic practices completely and remaining at one all location year round, often pasturing reduced numbers of animals immediately around the home or village.

Here short-distance migration is defined, somewhat arbitrarily, as a one-way distance of 20 km or less from the home village to the summer camp. This distance is about the limit one can comfortably ride on horseback round-trip in a single day in mountainous terrain, and a distance which represents the limit at which seminomadic herders are able to make frequent daytrips home in summer. In this study, an extended family unit is considered to be any family where a large portion of camp duties are performed by a relative outside the immediate, two-generation, parent-child relationship, including grandparents, grown siblings with their own families, in-laws, grandchildren, cousins, nieces and nephews. A single family unit is defined here as a family composed of only two generations, with no-one outside the immediate parent-child relationship. Descriptions of each management pattern follow below.



### *Herding Cooperatives*

Following independence, privatisation of collectives proceeded rapidly in Kyrgyzstan and by 1996, 82 per cent of collectives had been privatised (Abazov 1999). Although most herding collectives disbanded shortly after privatisation, with the collective's assets being distributed among former members, a small number of collectives opted to simply reorganise themselves as private, member-owned cooperatives. While formerly there were 470 collectives in Kyrgyzstan, in Issyk-Kul Province today only four continue to exist as private cooperatives (Wilson 1997).

These cooperatives have been streamlined, with many former collective members having opted out of the new organisations to become private herders or farmers. Consequently, the cooperatives have reduced their livestock holdings and also eliminated unprofitable work enterprises. Nevertheless, the new cooperatives have largely retained their remote satellite camps and seasonal livestock migration patterns, although the area of pastures utilised as well as migration distances have been considerably reduced due to the large decrease in total livestock numbers.

One major change in the operations of the new cooperatives, however, is that there are no longer guaranteed state channels through which to market produce. Instead, cooperative directors have had to develop their own individual marketing strategies, which vary widely.

### *Herding as an Extended Family Unit*

In this survey, the most common livestock management structure used by seminomadic herders was that of the extended herding family. While three generations of a family were often seen together at the summer camp, in some cases these camps were limited to two generations, such as grown brothers summering together with their families and other relatives such as nephews.

Summer camps of extended families usually consisted of two to three yurts (or cabin tents in the case of the forested valleys on the north slopes of the Terskey range), usually located in valleys populated by similar camps of herding families from the same home village. Herding duties were typically divided up by animal type, with some of the men and boys looking after the sheep, the grazing of which was monitored for much of the day before the animals were herded back to the camp each evening with the milk cows. Other men herded, or at least periodically checked on, horses and male cows, which might be left unattended for several days at a time depending on the distance of horse and bull pastures from the main camp and perceived threat to these animals from wolves. Women typically looked after the cooking, milking, infants and other household duties, including laundry, washing dishes and fetching water.

### *Herding as a Single Family Unit*

A much less common livestock management pattern observed was that of transhumance practised by a single family unit. Summer camps of single family

herding units usually consisted of only one or two yurts or cabin tents. Again, these herding camps were generally located in valleys populated by herding families from the same home village. Herd sizes managed by single family units were, not surprisingly, much smaller than those managed by extended families, with the husband and sons usually rounding up all animals each evening and bringing them back to camp each night. Wives and daughters in these camps typically looked after the cooking, milking, infants and other household duties. However, in the absence of children old enough to help, wives were often assisted by their husbands with household chores, particularly with respect to milking cows and mares.

### *Herding Partnerships*

A third, independent (non-cooperative) livestock-management structure observed was that of transhumance being practised by small partnerships, e.g. of two to seven herders (in cases observed), who were often not members of the immediate family but rather friends or neighbours who banded together in summer to facilitate migration to and herding at, the chosen summer camp. Herders in these type of arrangements were typically younger men in their twenties to thirties who were either unmarried or had left their wives and young children behind in the village. Camps in this type of arrangement usually consisted of one to two yurts or cabin tents with herding practices that included both division of herds by animal type in the case of larger partnerships, and a daily round-up and return of all animals to camp for a two-person partnership that was observed.

### *Herding a Mix of Personal Livestock and That of Paying 'Clients'*

An extremely common herding strategy, used by both seminomadic and sedentary herders throughout the study area, was that of herding a mixture of the herder's personal livestock together with the small livestock holdings of sedentary clients. These clients were most often village dwellers, usually neighbours or friends, from the given herder's home village or neighbouring villages, who paid herders a monthly fee to drive their pooled small livestock holdings to higher summer pastures for several months each year. For younger herders, who so far in life had not yet built up personal herds to sizes sufficient to fully support themselves, these herder-client agreements appeared to be a very important source of income. While usually having more personal livestock and responsibility than the 'hired hands' of wealthy livestock owners, many of these for-hire herders were visibly poor. For rates that herders charged clients at two locations in 2004, see Table 2.

### *Diversifying Income-generating Activities Beyond Herding.*

One survival strategy used to varying degrees by most seminomadic herding families in the study area is that of diversifying income-generating activities to include not only herding, but also numerous new sidelines that were not practised by herding families prior to independence. These included using family plots to grow vegetables and grain, such as potatoes and wheat – which were formerly provided to

**Table 2: Rates for Herding Small Livestock Holdings, 2004<sup>1</sup>**

Animal Type	Village Rate (per Month per Animal) at Ananevo, Issyk-Kul Province	Summer Pasture Rate (per Month per Animal) at Kochkor, Naryn Province
Sheep	25 som	8 som
Cows	65 som	40 som

Source: C.J. Hazell 2005. Personal Communication.

<sup>1</sup> In 2004, US \$1.00 = 41 Kyrgyz som

herders by the collective – and sometimes marketing excess produce, if any; opening a shop or trading in the market and having a family member taking a sedentary job in town. However, probably the most lucrative emerging sideline for some herding families, which has created a new generation of small-scale rural entrepreneurs, is that of catering to foreign tourists and hunters. Some families dwelling in scenic areas along well travelled tourist routes were doing an excellent business providing food, lodging, guides and handicrafts to foreign visitors.

#### *Ending All Nomadic Herding Practices Completely*

In many cases, formerly seminomadic herders have simply decided to give up the practice of transhumance altogether and now dwell all year in the home village. Many of these families continue to pasture reduced numbers of animals all year round on grazing lands in the immediate vicinity of the village and naturally have diversified their incomes, in particular by starting small family garden plots. The motivation for giving up transhumant practices is often simply the convenience of living close to the services available in the village, such as schools, medical clinics, shops and a convenient place to market the family's agricultural produce.

While these seven basic patterns of economic reorganisation were observed, herding units visited that were practising a pure form of one of the patterns above were the exception rather than the rule, as most herders practised some combination of two or three of these patterns, as discussed in the following case studies. However, in most cases a dominant pattern was apparent.

## **Case Studies**

### *Herding Cooperative Case Studies*

#### **ZARIA COOPERATIVE**

The Zaria Cooperative is a former collective based in the town of Ak-Suu, located 10 km east of the Issyk-Kul provincial capital of Karakol. At its height in 1989, the collective had 1,200 workers, 42,000 sheep and 2,000 cows, while today the

cooperative employs 500 workers, both Kyrgyz and Russian, and has the following livestock holdings: 3,800 sheep, 600 cows, 700 yaks and 340 horses.

The cooperative's herds are distributed based on animal type over a large stretch of eastern Issyk-Kul Province. Yaks are kept all year round, far to the south in the high grass and syrt lands across the Terskey range between the settlements of Koyluu and Engilchek. The cooperative's cows are pastured on mid-altitude grasslands to the northeast, near Santash, not far from the Karkara border post with Kazakhstan. Sheep kept by the collective are predominantly introduced crossbreeds of fine-wool sheep, rather than indigenous breeds raised for meat. For eight months of the year these sheep are kept in sheds and pastures immediately around Ak-Suu, being fed supplementary fodder in winter. However, from about 15 May to 15 September each year, these sheep continue to be driven 15–20 km on foot to the cooperative's Soviet-era summer pastures immediately above Ak-Suu in the forested Arashan and Ak-Suu Valleys.

In the Arashan Valley, four herders from the cooperative reside in cabin tents with their families as they manage a portion of the collective's sheep holdings, overseeing about 450 sheep each. These cooperative members live much the same as individual herders in the valley, with a short summer migration from their homes in Ak-Suu, about a two- to three-hour horse ride up the mountain from town.

During the Soviet era, the collective sold the meat it produced directly to state-owned meat-processing plants. Today, the cooperative continues to market its meat to state-owned institutions such as local hospitals, kindergartens, mineral spas (*kurorts*) and an old-age home, while the milk from its dairy herd is sold to a nearby dairy processing plant. In addition to livestock, the cooperative also grows potatoes, wheat, cabbage, carrots and apples and receives support from the government in the form of credit. Somewhat surprisingly, neither yak wool nor yak milk is harvested.

## AIKOL COOPERATIVE

The Aikol Cooperative is a former collective with its administrative headquarters in the town of Bokonbaev, located about 130 km southwest of Karakol. At its peak in 1989, the collective had roughly 700 workers, 66,000 sheep, 400 cows, 1,200 yaks and 700 horses. Today, the cooperative has 500 workers and the following livestock holdings: 8,000 sheep, 2,000 yaks and 600 horses.

The cooperative's livestock are kept on the grass and syrt lands surrounding the 2,800 m high settlement of Archaly, located 50 km south of Bokonbaev across the Terskey range, a distance of 280 km by road. Archaly was established in the Soviet period as a 'cultcenter' and today functions as the cooperative's herding centre. In winter, animals are pastured around Archaly, while in summer livestock is driven eastward a short distance, (15–20 km), to summer pastures in the Archaly valley to the southeast and in the Baltart valley to the northeast. However, during the late Soviet period, the collective's animals were driven much further eastward, around 50 km from Archaly. Today, with 58,000 fewer sheep, the collective no longer needs to use these distant pastures.

Both meat and live animals are transported to market from Archaly by truck. While formerly the collective sold its meat directly to state-owned meat processing plants, today primary markets for the cooperative's animals and meat are found in Bishkek and Tokmak cities and include sale to private Kyrgyz and Kazakh traders. Yak meat is sold directly to sausage factories, while a large part of the cooperative's meat is bartered for basic supplies, such as potatoes, which the cooperative does not produce itself.

## COMPARISONS AND CONCLUSIONS

As can be seen from the above two examples, both the animal holdings and the work forces of these operations have been greatly reduced, with the Zaria Cooperative now having 58 per cent fewer workers and 91 per cent fewer sheep, while the Aikol Cooperative now has 29 per cent fewer workers and 88 per cent fewer sheep. The Zaria Cooperative has reduced its cow herd by 70 per cent since privatisation, but the Aikol Cooperative has discontinued its dairy operation entirely. Both cooperatives have invested heavily in yak herding, with the Zaria Cooperative, which did not have any yaks during the Soviet period, now having 700 head, while the Aikol collective has increased its yak holdings from 1,200 head at the end of the Soviet period to 2,000 head today. This is due to the relatively low labour requirements for yak management, as they can be pastured all year round on high mountain pastures that, at present, would otherwise be vacant. Yaks also do not require supplementary feed or sheds for warmth in winter. Consequently, with the steady demand for meat, yak herding has become a profitable business on remote lands that were formerly occupied by fine-wool sheep.

Both cooperatives support satellite camps where the cooperatives' herders continue to practice transhumance. The Zaria collective operates three satellite camps, each of which specialises in a different type of animal and the Aikol collective maintains its main herding camp at a distant location from the collective's administrative headquarters. While the Zaria Cooperative has a more traditional marketing scheme, marketing its produce by contract to government-owned institutions such as schools, hospitals and health spas, the Aikol Cooperative now deals with private firms and traders operating on the open market.

### *Extended Family Unit Case Studies*

## CHONG-JARGALCHAK

The village of Chong-Jargalchak is located north of the Terskey range, about 70 km southwest of Karakol. In a forested valley just east of the village, the author visited the summer camp of a large extended herding family that consisted of two grandfathers and their wives, five younger married couples and eight grandchildren. The spot the family had chosen for their camp was a well-watered meadow surrounded by spruce forest in the lower valley, only a short, one- to two-hour, approximately 10 km horse ride from their homes in the village.

At the summer camp, the families were dwelling in a pair of cabin tents and were looking after a family-owned flock of six hundred sheep that were herded back to the camp each night. Although in nearly every respect living the traditional summer life of seminomadic herders, the family had chosen a summer pasture close to the village that permitted family members to make frequent trips between their summer camp and homes in the village to check on residences, gardens and other business. The arrangement not only facilitated delivery of camp supplies from the village, including fresh food, but also allowed the men of the family frequent visits to wives and children when they were resident in the village rather than at the summer camp.

### LAKE CHATYR-KUL

Lake Chatyr-Kul is a high-altitude lake (elevation 3,560 m) located between the At-Bashy range and Torugart pass in southern Naryn Province. While at the end of the Soviet era the lake basin had been the summer home to some 150,000 sheep, in August of 2004 only twelve herding families had established camps around the lake with at most twelve thousand sheep, but probably far fewer. At Chatyr-Kul the author visited one of only two herding camps encamped on the north side of the lake. Their camp was extremely isolated and consisted of two large yurts occupied by a family from the village of Kara-Suu in Naryn Province, which included a grandfather, his two adult sons, his daughter, his son-in-law and five grandchildren, of which only one child was old enough to help with the herding activities.

The family managed eight hundred sheep, two hundred yaks, thirty cows and thirty horses, which were both their own and those of friends and neighbours in Kara-Suu. The family spent about three months each year at the lake, from mid-June to mid-September. A truck brought the family's yurts, equipment and supplies to their camp via the Bishkek-Kashgar highway and a dirt track around the western terminus of the At-Bashy range, a distance of about 110 km from Kara-Suu. Sheep, yaks and horses were driven from Kara-Suu on foot over a 4,040 m high pass in the At-Bashy range, a journey of about 75 km that took three days to complete. However, the thirty cows the family managed in summer were all transported to and from the camp by truck.

Camp activities included morning and evening milking of cows, yaks and horses for immediate consumption in camp. Meals consisted largely of camp bread with butter and *kaimak* (cream), yogurt and tea with sugar or jam. In the morning, one man drove horses out to pasture as a herd, while the others drove sheep and cows out to different pastures. In the afternoon the grandfather instructed his oldest son in making saddlery by hand with homemade leather-working implements, and this particular family harvested yak wool for making ropes, used to lash felt yurt covers to yurt frames. In autumn, all animals were driven back to Kara-Suu where they were pastured in the immediate vicinity of the village.

## COMPARISONS AND CONCLUSIONS

In these two case studies, the extended families ranged in size from nine to twenty-two members and both managed large personal livestock holdings, while one family also managed a large number of animals belonging to paying clients. In the case of the first family, the summer camp was only 10 km from the village, allowing family members to be active participants in village life throughout the year, including undertaking activities in summer such as planting of home gardens and buying and selling in weekend markets. The second family had a much longer migration, 110 km, leaving the family extremely isolated for more than three months of the year and requiring careful logistical planning with respect to food and other necessary supplies. By mid-August it appeared that the family no longer had any potatoes or carrots left and were subsisting largely on dairy products and camp bread.

### *Single Family Unit Case Studies*

#### KENG-SUU

The village of Keng-Suu is located about 35 km east of Lake Issyk-Kul at the foot of the Kungoy range. At Keng-Suu, the author visited one of the last large-herd owners in the village, a 26-year-old herder with a wife and four young children – three boys and one daughter between the ages of about eight and three – who only provide limited help with herding duties. The family owns about seventy-five sheep, ten cows and ten horses, which are housed in two collective-era winter sheds located next to the family's residence.

From about late September to late May, the family keeps its animals pastured on steep, south-facing slopes immediately around the village. In May, the herder, assisted by his brother, drives the family's herd on horseback to the family's summer pastures 25 km to the east, near the border post of Karkara. Once at the summer pasture, the herder's brother spends four months residing in a yurt and looking after the animals. The herder himself returns to Keng-Suu to look after the family's half-hectare potato patch, which the family recently began planting in order to meet their own need for potatoes, until the animals return in autumn. The young family also has taken a stake in a wheat field shared with other families and rented out a small plot of land behind the family's home to Russian beekeepers, who keep their hives there from September to May. While clearly doing well for a young herding family, the parents spend all waking hours hard at work and will have little leisure time until the children are old enough to shoulder some of the herding and gardening duties.

#### BIRLIK

The village of Birlik is located in the At-Bashy valley, 10 km west of the town of At-Bashy. The household visited in Birlik consisted of a married couple with five sons and two daughters ranging in age from about twelve to twenty-six. The father

held a full-time job with the local government and received a salary of about US \$20 per month, though in practice work days might often only last four or six hours, allowing plenty of time to attend to family business. The family's home was typical of those in Kyrgyz villages, a combination of adobe construction and an eastern European-style farmhouse layout with a barn set up across the yard from the house and the entire compound walled off and accessed through a large metal gate facing the street. The home consisted of a large kitchen where the family ate by the fire, a large living room in which most family members slept and a smaller back room also used for sleeping. For fuel the family used poplar wood cut from the flood plain of the nearby At-Bashy river to start fires, which were sustained by burning sheep dung cakes cut from the ground inside the family's winter shed each spring. Although the village had electricity, this was cut off in a rolling blackout for about an hour each evening, as occurred throughout the At-Bashy District.

The three youngest children attended the local secondary school, while the oldest daughter studied at the university in Naryn. The three oldest boys worked in the village. One ran the family's shop, located outside the main gate of the family compound, which sold sundry items such as crackers, boiled sweets, toothpaste, soap, thread, shoe polish and the like. The oldest son was recently married and lived with his wife at the family's winter camp, located 2 km away on the edge of the village, where the family had inherited a herder's cabin with winter shed from the disbanded collective. The third oldest son provided general help for the family's livestock operation, which consisted of one hundred sheep, a few goats, forty yaks, ten horses and three cows, as well as a few chickens and turkeys.

From mid-June until mid-September, many family members would migrate to the family's summer pastures at a site known as Chatyr-Tash located near the eastern end of the Ak-Sai valley, a distance of about 90 km from Birlik. The family had inherited a truck with a large bed and a similar-sized trailer from the collective, which they used to transport animals to and from their summer camp each year, although some of the family's yaks remained at the summer pasture all year round. At the summer camp, yurts were set up but some family members had to remain in the village throughout the summer to look after the family's home, shop and potato patch. Although the family had amassed relatively large assets for a single family unit, any financial gains made were required for supporting the large number of children in the family, four of whom were adults. With the oldest children of marriageable age, it appeared that the family was reaching the end of their single family unit developmental phase, although the five sons appeared set to continue the family herding operation as an extended family unit.

## COMPARISONS AND CONCLUSIONS

In general, the single family herding units interviewed (and others observed) tended to be younger couples just striking off on their own in life with small children and limited livestock holdings; some of these families were visibly struggling to get by. However, in the second case study, the children were all



teenagers and young adults and the family was on the verge of becoming an extended family unit. Both families had reached a 'middle income' status in life, with fairly large livestock holdings and assets diversified to include things such as large potato patches and, in the case of Birlik, a small shop and a government job. Interestingly, both heads of these households complained of there being 'no work' since the collectives broke up, although both were occupied full-time with their private income-generating activities.

### *Partnership Case Studies*

#### KARAKOL VALLEY

The Karakol valley is forested and begins on the outskirts of Karakol town. One herding camp in the valley, located about 20 km up the Karakol river from town, consists of two cabin tents housing seven male herders working in partnership to manage about six hundred sheep, four hundred cows and one hundred horses – a mixture of their own livestock and the small livestock holdings of paying clients. Beginning in about mid-April, these herders drive livestock on foot from villages near Karakol to summer pastures in the Karakol valley. Distances travelled range from about 20 to 40 km, depending on where a given animal type is pastured and the herders remain in the valley until about mid-October. Once in the valley, pooled animals are divided up by type, with horses and bulls occupying remoter pastures where they are left for long periods and only checked on every three or four days, while sheep are brought back to camp each night. Client payments for summer herding services amount to about US \$5.00 per month per family (Table 2). In winter these animals are pastured in the immediate vicinity of local villages, where snow cover is minimal due to the mild climate immediately around the Lake Issyk-Kul (*issyk-kul* literally means 'warm lake'). Animals wintering in the Karakol area are also fed supplemental fodder such as sainfoin, barley and hay. The partnership arrangement not only facilitates herding duties, but also provides camaraderie and allows individual partners the freedom to make an occasional trip to town.

Similar herding partnerships were seen in the neighbouring forested Arashan and Jeti-Oguz valleys and it may be possible that the wives of these herders are required to remain at home to watch fairly diversified family gardens, Lake Issyk-Kul having a warmer climate and longer growing season than the highland herding villages to the south and west.

#### KENG-SUU

In the case of Keng-Suu, the herding family operates as a single family unit eight months of the year. However, after driving the family herd to the summer pasture and establishing camp, the father of the family places the herd solely under the management of his brother and returns to Keng-Suu to spend the summer attending to the family potato patch with his wife, in effect forming a family

partnership, where the two brothers exchange herding duties for several months each summer but do not spend much time working together except during the brief spring and autumn migrations.

## COMPARISONS AND CONCLUSIONS

In the case of herding partnerships, roughly half the animals managed typically belonged to sedentary villagers, the cost-effective herding of which was apparently the stimulus for the formation of these partnerships. Most of the members of these partnerships appeared to be struggling financially, as yet not having built up large personal livestock herds of their own. As many of the animals herded by these partnerships in the Karakol valley and elsewhere were bulls, milking cows for the most part being left in the village for daily milking, production of milk products beyond those needed for immediate use appeared to be a low priority in these camps, with the primary objective simply being the summer fattening of clients' sheep, horses and bulls. In some cases it is conceivable that these partnership arrangements could evolve into multiple single family unit situations when sons come of age to herd livestock, or possibly even into hired-hand type arrangements at a later date.

### *Client Livestock Case Studies*

As seen in the above case studies for Lake Chatyr-Kul and Karakol valley, the practice of transhumance with the pooled small livestock holdings of multiple paying clients is common in Kyrgyzstan for herders undertaking both short and long summer migrations. Herding operations hiring out their pastoral services included extended families, single families and partnerships. The two common features of the herding operations in all these business arrangements were the availability of sufficient labour to manage more animals than the operation currently owned itself and the need to do so for relatively small sums of money, typically US \$5.00 per month per client or client group, some clients apparently pooling their animals as 'village organisations' prior to seeking out a herder to watch these animals in summer (see Table 2). Thus herders taking on clients were typically poor to lower-middle-income families with modest personal livestock holdings, who needed to generate extra income by creating an economy of scale to justify herding small livestock holdings to distant summer pastures.

This type of client-herder relationship was not limited to herders practising transhumance, but was also taken on by sedentary herders who might take the lone milk cow of many individual families to pastures around the village and back each day for a standard monthly fee, or even the few sheep owned by individual village dwellers if there were no other family member available to look after these animals (see Table 2).

*Diversified Incomes Case Studies*

LAKE SONG-KUL

Lake Song-Kul is located about 80 km northwest of Naryn, the provincial capital of Naryn Province. The lake sits at a high altitude (elevation 3,025 m) atop a remarkably scenic grassland plateau ringed by mountains that fall off precipitously on all sides to plunging river gorges below. Prior to Kyrgyz independence, the lake basin had long been used almost exclusively as summer pasture by seminomadic herders living in the valleys below. However, since independence the lake has become one of the premier tourist destinations in Naryn Province, attracting hundreds of European tourists each year. With the encouragement of international development organisations, herders summering in the lake basin have recently entered the tourist trade as a sideline, with some families doing a rather brisk home-stay and guiding business in July and August.

One extended family continues to make the 50 km summer migration to the lake basin each year from the village of Ak-Talaa, located in the Naryn River valley, immediately south of the lake. In June, the men drive the family's one hundred sheep, ten horses and ten cows up a river canyon to the lake on foot, while the family's yurts, supplies and household items are transported to the summer pasture by truck, where the family remains until October. However, in addition to the two yurts the extended family lives in, they now transport an extra three yurts for accommodating tourists and a cabin tent to use as the camp kitchen. At about US \$35 for the jeep ride to or from town and US \$9 per person for accommodation in a yurt with three meals, the income the family earns in the summer months from tourism in all likelihood far exceeds the income they are generating during the same period from their livestock operation.

As discussed above, herders and their families engage in a number of non-herding activities in order to boost their incomes or food security, with varying degrees of success. In general it was seen that only the few most successful herding families could get by on earnings from herding alone, leaving the vast majority of families to seek out other sources of income, such as tourism, farming, shop keeping or taking a sedentary job. However, in addition to legal avenues, stories abound in the study area of rural people engaging in numerous illegal activities to generate extra income, including poaching of wildlife, illegal harvesting of timber, cattle rustling and growing of marijuana.

*Sedentary Case Studies*

SARYCHAT ERTASH

The Ak-Shirak and Ertash river valleys are located on the syrt lands of southern Issyk-Kul Province. Today the largest employer in this area is the Sarychat-Ertash Nature Reserve, Kyrgyzstan's largest protected area. The reserve employs fourteen locals as rangers, the majority of whom are from families that were members of

herding collectives in the area that disbanded in the 1990s. However, rangers' salaries are only 750 som per month, about US \$18.00. Consequently, due to their low salaries and their extremely isolated location, rangers have no choice but to keep livestock to make ends meet. The ranger in the southern buffer zone of the park is typical. He, his wife and three-year-old daughter live in a two-room, former collective cabin and keep two hundred sheep and a few milking cows and horses, which include animals owned by the ranger's mother-in-law who lives in a small village nearby. The family dwells all year round at the ranger's cabin and graze their sheep in the immediate vicinity of the camp, rarely more than 5 km from their home. Each night the animals are herded into corrals adjacent to the family's home as protection from wolves, a practice which also provides a convenient collection point for dung, the family's primary heating and cooking fuel. Although there appears to be sufficient grass for the family's animals at this time, the slopes surrounding the camp exhibit few signs of recovery from severe damage caused by overgrazing during the Soviet era, even twelve years after the collective vacated the area.

## COMPARISONS AND CONCLUSIONS

Although the family discussed above did manage to find a way to remain in the area where they had lived during the collective period, the vast majority of herders from the collectives in this remote region had no choice but return to their home villages near Lake Issyk-Kul following independence. In some instances these herders bought property from departing Russian families and took up farming. While sedentary families rarely keep as many sheep as the family discussed above, some sedentary herders may watch flocks this large if managing the pooled animals of paying clients.

One result of sedentarisation by formerly seminomadic herders throughout Kyrgyzstan following collapse of the collective system has been an increase in the severity of pasture degradation around villages due to their year-round use. Some districts are contemplating requiring that small-scale livestock owners move their animals away during summer to reduce the pressure on grazing lands around settlements.

## **Post-Soviet Abandonment of Pasturelands in Eastern Kyrgyzstan**

Although the practice of seminomadic livestock herding continues to be widespread throughout eastern Kyrgyzstan today, it should be noted that many remote pasturelands in the study area have been largely depopulated, almost all of which are in the high grasslands and syrt lands along Kyrgyzstan's shared border with China. There are three primary reasons for the abandonment of these lands.

First, it is no longer economically feasible for herding families, even affluent ones, to move their animals and equipment to these remote pastures, some more than 200 km in distance from the collective villages that had formerly occupied

them, without state-sponsored support. Secondly, the improved roads constructed during the Soviet era, which lead to these remote pastures have not been maintained since independence and many are now impassable during the winter and much of the spring and summer due to deep snows and flooding caused by snowmelt and rain. Thirdly, since the infiltration of southern Kyrgyzstan by militants belonging to the Islamic Movement of Uzbekistan beginning in 1999, the government now requires military border-zone permits, which are difficult to obtain, to enter all pasture areas along the Chinese border, for both residents and non-residents of the border zones alike, further discouraging travel to these areas.

With fewer sheep, no guaranteed markets for their produce and an end to state support for herders living in these remote valleys, there is little motivation for individual families to use these remote and inaccessible areas for their summer pastures. In the study area, the result of these post-Soviet changes in the herding economy has been the creation of a roughly 70 km wide belt of land along Kyrgyzstan's Chinese border stretching from Lake Chatyr-Kul in the west to the Peak Khan Tengri ice fields in the east, that has been largely depopulated and is no longer accessible for many months of the year except by helicopter (Figure 1).

From the sparsely utilised Lake Chatyr-Kul basin at the western end of the study area, discussed above, the next valley to the east is the Ak-Sai Valley. With the exception of military posts and eight families residing at the former 'cultcenter' of New Ak-Sai, all permanent settlements in the valley have been abandoned since independence and very few herders remain in the valley all year round. In summer, families from At-Bashy District with the means to do so continue to make limited use of the valley for summer pasture.

Continuing eastward, in the Kara-Sai area, apart from a few herders living near the military post, the valley has been almost entirely depopulated, while in the western Ak-Shirak valley the only herders encountered were the sedentary rangers from the Sarychat-Ertash Nature Reserve. Although the Ertash River valley immediately to the north of the Ak-Shirak Valley had been populated all year round by subsistence herders since at least the nineteenth century, as evidenced by the large number of tomb mounds in the valley, in 1995 the few herders that remained in the Ertash were moved out of the valley upon creation of the nature reserve.

Finally, in the Sary-Jaz River valley immediately south of Chong Pass, over a 75 km stretch of valley along the highway between the base of the pass and the largely abandoned tin mining community of Engilchek, only four herding camps were observed at the height of summer in the well-watered flood plain and terrace meadows lining the river.

## **Conclusions**

Seminomadic livestock herding in post-Soviet Kyrgyzstan continues to be a time-honoured tradition that supports a large segment of eastern Kyrgyzstan's rural

population. However, since the arrival of the Russians in the Tian Shan range in the second half of the nineteenth century, Kyrgyz transhumant practices have been significantly modified, first with the displacement of Kyrgyz herders by Slavic farmers and secondly by forced collectivisation under Stalin. Seminomadic herders were settled in permanent villages and a fairly uniform regimen of state-subsidised herding practices was instituted, which placed the highest priority on wool production. While the brutal implementation of the collectivisation process initially resulted in great loss of livestock and human life, in the period following the Second World War, the collective system provided many social and economic benefits to herders.

In spite of the collapse of the collective system and the end of generous subsidies provided to herding collectives by the Soviet government, many herders persist in practising transhumance, migrating to summer pastures in the mountains each year. However, with disintegration of the Soviet Union, large numbers of herders have become individual livestock owners for the first time in their lives and possibly in the history of the Kyrgyz people, by which the burden of risk has now devolved upon the individual rather than on the collective or clan. This process of social reorganisation has seen a very small number of herding collectives simply reorganise themselves as private, member-owned cooperatives, with streamlined operations that include both reduced work forces and herd sizes, as well as cessation or reduction of unprofitable sidelines such as dairy farming.

The vast majority of herders still practising transhumance, however, have reorganised themselves along family lines or neighbourly partnerships, with younger, less well-off families opting to form partnerships or go it alone as a single family, while better-off families have stuck together, operating as multigenerational, extended family herding operations. Migration distance of a herding family seems in large part to be a function of the family's home location and the size of the herd it oversees. Families from villages in the Issyk-Kul basin, an area with extremely productive summer gardens, orchards and pastures, practise shorter migrations within the lake basin as they have alternative income sources in their home villages. Families from the cooler, drier, less productive highland valleys of Naryn typically have much longer migrations. In this survey, these Naryn families included the herding family with the longest migration (110 km), who also oversaw the largest herd of all the families in this study.

In order to make ends meet in this difficult economic period, in almost all cases families running herding operations were attempting to, or had already succeeded to some degree in their efforts to diversify their sources of income. These activities included managing the small livestock holdings of paying clients, providing bed-and-breakfast-style accommodation and guide services to foreign tourists, starting family garden plots, opening shops in the village, or having a family member take on a sedentary job.

However, in spite of Kyrgyzstan's great progress in the transformation from a centrally planned to a market-based economy, many of the economic activities in

herding communities remain informal, based on barter rather than on cash, in which herders barter livestock products for items such as potatoes or other necessities, only generating limited cash incomes through the sale of live animals, meat, milk, skins and wool in local bazaars.

Although herders persist in practising transhumance in some of the most remote mountain valleys in Kyrgyzstan, with the demise of the collective system and accompanying support infrastructure, livestock numbers have fallen dramatically and it has become economically unfeasible for most individual herders to make long summer migrations. Consequently a long, 70 km wide, swathe of remote grazing lands along the Chinese border between Lake Chatyr-Kul in the west and Peak Khan-Tengri in the east, which had been intensively used by the collectives prior to 1991, has been largely depopulated. In general, most herders formerly residing on these remote lands have now returned to their home villages in populated regions along major transportation routes with the attendant markets, schools and medical clinics. Privatisation of livestock and decreased mobility of herders has in turn led to increased use of pastures immediately around villages, resulting in extensive pasture damage, proliferation of unpalatable woody plant species and large slope failures in these areas (Daviesson 2001).

Another problem now facing herders in independent Kyrgyzstan is a traditional one, long attenuated by the collective system, that of wolf kills (Hazell 2001). While in the collective era no single individual felt the financial blow of collectively owned animals being lost to wolf kills, this now can constitute a serious financial setback for individual herders, as one herder the author spoke with in a remote area of the Naryn River gorge was to lament after losing three horses to wolves in one week.

The Soviet Union made great strides in developing the herding regions of Kyrgyzstan, vastly improving herders' quality of life by construction of improved roads, power lines, schools, medical clinics and potable water systems for every community in the study area, even providing generators to many remote herding camps. However, in the years since independence, these gains are slowly being erased through a process of 'de-development', whereby all forms of public infrastructure are gradually deteriorating due to a lack of funding for repairs, with the most remote communities being the most severely affected by the process.

One result of de-development in the study area has been the creation of a thriving business, by which broken-down, Soviet-era agriculture machinery and vehicles are sold to Chinese scrap metal dealers, further reducing the likelihood that the benefits of Soviet-era mechanisation will be revived by local herders anytime soon. The end of subsidised coal for Kyrgyzstan following independence was accompanied by the problem of accelerated deforestation in areas having significant forest cover and also deforestation of brush lands and wooded areas in riparian corridors throughout Kyrgyzstan (MEP 1998). As a result of dwindling fuel supplies, there is a renewed reliance among rural dwellers on their traditional

fuel source, dung cakes, which are now the primary source of fuel for cooking and heating used by most herding families today (Jangaracheva 2002).

Thus it is not surprising that nearly all herders interviewed in this survey looked back on the Soviet era with great longing and a sense of abandonment. A number of herders even considered themselves unemployed because monthly salaries no longer arrive from the collective, even though they were fully occupied with their own private livestock, farming and other businesses. This sense of loss has even been passed down to a younger generation with few memories of the Soviet Union, who have learned to lament its passing from their elders.

Post-Soviet organisation of transhumance has produced diverse forms that reflect not only the conservatism of earlier collective and clan practices, but also a newer individualism where some herders, either by choice or lack of choice, are going it alone as a family unit. Many former herders have given up the practice of transhumance altogether for the relative convenience of life in the village. Yet, in spite of the multitude of changes in Kyrgyz society over the last 150 years, in many respects the lives of the nation's seminomadic herders go on much as they always have in the Tian Shan, with herders driving their animals to summer pastures along ancient livestock routes and unfurling their yurts in high mountain meadows for several months each year.

However, Kyrgyz herders now face many new challenges in keeping their seminomadic way of life viable in years to come. Although seminomadic livestock herding has never been an easy life, the level of hardship involved has increased dramatically since independence brought the end of all state support for herders, who now must be completely self-reliant. Furthermore, without removal of barriers to broader regional trade in livestock products, it is unlikely the lives of Kyrgyzstan's pastoralists will improve significantly in the foreseeable future. Although Kyrgyzstan's herders face large challenges today, nomadic pastoralism remains at the core of the Kyrgyz identity, as evidenced by the use of the circular yurt roof frame as the national symbol and by the thousands of urban Kyrgyz who return to ancestral villages each year to spend summer holidays drinking *koumiss* and visiting the yurts of relatives who remain on the land. In spite of the changing times it appears that the practice of transhumance will continue in Kyrgyzstan for some time to come.

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